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MONTANA FOREST PRODUCTS BULLETIN

Department of State Lands, Division of Forestry
2705 Spurgin Road, Missoula, Montana 59801
Ph: (406) 728-4300

GARY G. BROWN, State Forester

PAUL MOORE, Editor

VOL. 11, NO. 6

NOVEMBER/DECEMBER 1986

This bulletin is mailed primarily to individuals engaged in the Forest Products Industry in Montana. In addition, it is mailed to county agents, lumber brokers, wholesalers, dealers of sawmill and logging equipment, educators, and Montana Tree Farmers, as well as the Departments of Forestry in many states.

The purpose of this newsletter is to communicate information regarding the properties and uses of wood products, promote efficiency in the utilization of wood from the stump to the end product, and to serve as a information source for members of the forest products industry.

All persons receiving this newsletter are asked to examine their mailing address and advise this office of any corrections needed for proper mailing.

USING A HOME MICROWAVE OVEN FOR OVEN DRYING

Many times in wood products manufacturing, we need to know the moisture content (MC) of wood. The process of measuring MC accurately typically involves cutting a small sample, weighing it, oven-drying it for 24 hours and reweighing it. The microwave oven can be used in this process to oven dry small samples or sections in order to obtain their MC in minutes rather than in hours or days.

In the dry kiln operation, we use the sample board method of estimating MC using moisture sections. This microwave oven technique is not meant to replace the sample board method. Rather, with the microwave the time involved in drying the sections can be shortened to minutes, providing better information on MC's for kiln operation, especially for start-up and shut-down.

The major requirement for this technique is that the microwave oven must have a carousel tray to slowly turn the sample in the microwave. In addition, special procedures must be followed. These special procedures are required because (1) microwave energy in the oven is not uniformly distributed resulting in a none uniform drying of the wood samples, and (2) microwave drying is likely to result in the burning of the samples.

The correct procedures are: 1) Cut 1" along the grain moisture section or sample, as is typically done for hot air oven drying methods. Weigh this section immedi-

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ately after cutting. 2) Place the wood section on a paper towel near the outside edge of the carousel tray, not the center, this prevents uneven drying. 3) Use a medium-low or low power setting, this prevents smoking of the sections. The time required for oven drying is approximately 10 minutes for dry pieces and 20 minutes or longer for wetter pieces. 4) Weigh the section after the initial drying and then dry for an additional minute. Reweigh the section. If the section weights are the same, then it is oven dry. 5) Use the same formula to calculate MC with a microwave oven as with a hot-air oven.

By Gene Wengert, Department of Forest Products, VA Tech, Blacksburg, VA 24061.

PEG TREATMENT STABILIZES WOOD

Wood is inherently low in dimensional stability when compared to steel, whose dimensions change only slightly in response to atmospheric changes. Characteristically, wood shrinks and swells a great deal with changes in relative humidity. At high humidities, wood swells, and at low, it shrinks.

While no finish is totally effective in stopping wood from shrinking and swelling as the humidity changes, woodworkers can treat carvings, gun stocks, furniture parts, bowls and other wood products in a solution of polethylene glycol-1000 (PEG) to eliminate as much as 80 percent of the wood's moisture-induced dimensional changes.

Developed at the Forest Products Lab (FPL), the stabilizing treatment involves soaking green or reasonably moist wood in a lined plastic garbage can or other suitable vat of PEG solution for a period of time, depending on solution strength and temperature, wood species and wood thickness. The PEG solution slowly diffuses into the wood and fills the space that would normally be occupied by water alone when wood is in the green condition and swollen to its greatest dimensions.

When the wet PEG-treated wood is dried, the PEG remains in the wood structure and prevents the wood from shrinking. Also, any additional uptake of water from high humidity will cause very little swelling. The treatment should not be used when wood will be in contact with liquid water because the PEG will dissolve out of wood again.

Polethylene glycol-1000 is a white, wax-like chemical that resembles paraffin and is often used in cosmetics. It is a solid at room temperature and melts at 104° Fahrenheit. It readily dissolves in warm water, is non-toxic and non-corrosive. PEG treatment has no affect on the odor of wood and only slightly affects mechanical strength and hardness, but may darken the wood somewhat.

The fibers have less tendency to fuzz and splinter when the PEG-treated wood is machined than do those of untreated wood. PEG-treated wood can be effectively sanded, stained and glued when the proper techniques and materials are used.

For more information on PEG treatment for wood, ask for publication -001-00303-4, "How PEG Helps the Hobbyist Who Works With Wood" by Harold L. Mitchell, from the Superintendent of Documents, Government Printing Office, 710 N. Capitol Street, Washington, DC 20402.

Source: EXTEND March 1986
Forest Products Laboratory
Madison, Wisconsin

DEPARTMENT OF STATE LANDS TIMBER SALES

PIPE CREEK TIMBER SALE:

Sealed bids will be received by the Department of State Lands, Forestry Division, 2705 Spurgin Road, Missoula, Montana up to 2:00 p.m., November 24, 1986, for the merchantable sawtimber designated for cutting on Section 16, T31N-R31W estimated to contain 69 MBF ponderosa pine, 296 MBF western larch, 337 MBF Douglas-fir, 1 MBF other, 1,151 MBF lodgepole pine, 48 MBF dead all species, for a total of 1,902 MBF, more or less.

Full particulars regarding the terms of the contract regulations governing the sale and bid forms may be obtained from the Department of State Lands, Forestry Division, in Missoula; the Northwestern Land Office, 2250 Highway #93, Kalispell; or the Libby Unit, Department of State Lands Office located at the junction of the Fisher River Road and Highway #37.

CAMAS CREEK TIMBER SALE:

Sealed bids will be received by the Administrator, Forestry Division, Department of State Lands, 2705 Spurgin Road, Missoula, Montana up to 2:00 p.m., November 25, 1986, for the merchantable timber designated for cutting in Section 36, T13N-R16W estimated to contain 904 MBF yellow pine, 173 MBF Douglas-fir and other, 1 MBF dry sawlogs and 11,176 green tons of wood fiber, more or less, for a total estimated volume of 1,078 MBF and 11,176 tons of wood fiber.

Full particulars regarding the terms of the contract regulations governing the sale and bid forms may be obtained from the Department of State Lands, Forestry Division; or the Southwestern Land Office, 1401 27th Avenue, Missoula, Montana.

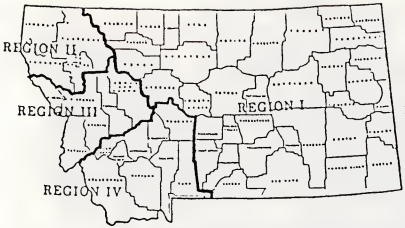
McCULLY RIDGE TIMBER SALE:

Sealed bids will be received by the Department of State Lands, Forestry Division in Missoula, Montana up to 3:00 p.m., November 24, 1986 for the merchantable sawtimber designated for cutting in Section 22, T23N-R27W estimated to contain 696 MBF ponderosa pine, 26 MBF western larch, 256 Douglas-fir, 2 MBF lodgepole pine and 1 MBF dead all species, more or less, for a total estimated volume of 981 MBF.

Full particulars regarding the terms of the contract regulations governing the sale and bid forms may be obtained from the Forestry Division Office in Missoula; the Northwestern Land Office in Kalispell; or the Plains Unit Office in Plains, Montana.

MONTANA LOG PRICE REPORT

The State-wide log price report on the following page catalogs recently delivered average log prices to sawmills by species using four geographical areas within Montana. Prices are provided by approximately 35 sawmills operating within the State. The report is compiled through the Extension Forester's Office, School of Forestry, University of Montana, Missoula, Montana 59812.



MONTANA SAWLOG AND VENEER LOG PRICE REPORT

NOVEMBER - DECEMBER 1986

The following information is a summary breakdown of recent past average prices reportedly paid by primary wood processors for logs of the various species listed. These prices are not necessarily a reflection of current market prices. Fair market prices may vary a great deal based on log size, length, quality, contract size and terms, and a number of other factors. All information reported is recent average price per thousand board feet (MBF), Scribner Decimal rule, delivered to the mill site, unless otherwise noted.

Prices provided for this report by individual firms are treated as confidential disclosure of the firm's operations. Any requests for mill-specific data which have been provided for the log report will be denied.

SAWLOGS Scribner Dec C MBF	REGION I	*	REGION II	*	REGION III	*	REGION IV	*
	Avg. Low High		Avg. Low High		Avg. Low High		Avg. Low High	
Ponderosa pine	$130/$130/$130	G	$200/$200/$200	G			$145/$145/$145	P
(Yellow)	$130/$130/$130	G	$212/$155/$240	G	$207/$185/$230	G		
(Bull)	$130/$130/$130	G	$144/$135/$155	G/P	$116/$ 90/$180	G/P		
Lodgepole pine	$140/$140/$140	G	$143/$135/$150	G/F	$148/$130/$155	G/P	$158/$150/$165	G/F
Douglas-fir	$140/$140/$140	G	$141/$125/$160	G/P	$155/$140/$170	G/F	$157/$150/$165	G/F
Western larch			$144/$135/$160	G/P	$154/$140/$165	G/P		
Engelmann spruce	$140/$140/$140	G	$148/$135/$175	G/F	$160/$155/$165	G/F	$160/$155/$165	G
Subalpine fir			$138/$135/$145	F/P	$144/$140/$155	G/P	$155/$155/$155	G
Grand fir			$138/$135/$140	F/P	$142/$140/$150	G/P		
Western red cedar			$180/$165/$200	P	$190/$190/$190			
Hemlock			$136/$125/$145	P	$140/$140/$140			
White pine			$227/$190/$275	G/F	$245/$200/$290	G		

VENEER LOGS Scribner Dec C MBF	STATEWIDE REPORT	
Species	Avg. Low High	Demand next 60 days*
Douglas-fir	$165/$160/$170	G
Ponderosa pine (bull)	$150/$150/$150	G
Western larch	$160/$150/$170	P

* Demand next 60 days

G = Good
F = Fair
P = Poor

MONTANA SPECIALTY PRODUCT

LOG PRICE REPORT

NOVEMBER-DECEMBER 1986

The following information is a summary breakdown of recent past (highest and average) prices reportedly paid by primary wood processors for logs to be used in the manufacture of specialty wood products. These prices are not necessarily a reflection of current market prices. Fair market prices may vary a great deal based on log quality, contract size and terms, distance to market, green vs. dry logs, and a number of other factors. All information reported is recent average price per piece (log) delivered to the mill site, unless otherwise noted. Please contact buyers before cutting logs to obtain their detailed specifications (log length & diameter). Species other than those listed may be in demand.

Prices provided for this report by individual firms are treated as confidential disclosure of the firm's operations. Any requests for mill-specific data which have been provided for this report will be denied.

RAILS (Lodgepole pine only)

Prices are recorded as the highest reported price over the average reported price.

D.I.B.* small end (in.)	Length (feet)					
	<10	10	12	16	18	20
2.5-3.0	.40 .40	.50 .47	.95 .75	1.40 1.27		1.50 1.50
3.0-3.5	.80 .53	1.00 .65	1.20 .96	1.60 1.38	1.80 1.80	2.00 1.83
3.5-4.0	.80 .60	1.60 1.03	1.92 1.18	2.50 1.60	1.80 1.80	2.00 2.00
4.0-4.5		.85 .85	1.10 1.00	1.75 1.48		
4.5-5.0				1.75 1.75		

*Diameter inside bark.

Demand next 120 days: good, fair, poor

POSTS (Lodgepole pine only)

Prices are recorded as the highest reported price over the average reported price.

D.I.B.* small end (in.)	Length (feet)		
	6.5	7.0	8.0
3.0	.45 .35	.55 .36	.60 .50
3.5	.80 .56	.55 .53	.60 .47
4.0	1.00 .56	.55 .55	.60 .60
4.5	.65 .54	.75 .75	.80 .80
5.0	1.15 .67	.75 .75	.80 .80
5.5	.65 .58	.80 .78	1.00 .87
6.0	.65 .57	.85 .80	2.00 1.15
8.0			1.50 .98

*Diameter inside bark.

Demand next 120 days: good, fair, poor

POLES (Lodgepole pine and western larch only)

Prices are recorded as the highest reported price over the average reported price.

Top D.I.B.* (in.)	Length (feet)							
	10	16	20	25	30	35	40	>40
3.0	.50 .50							
5.0-5.5	1.50 1.50	3.25 2.25	5.00 5.00	7.00 7.00	10.50 10.50			
6.0-6.5	2.00 1.87	4.00 3.60	6.00 5.75	8.20 8.20	12.00 12.00	20.00 20.00	31.00 31.00	35.00 35.00
7.0	2.00 2.00	4.00 4.00	6.00 6.00	8.20 7.75	12.00 10.80	24.00 24.00	32.00 32.00	37.00 37.00
8.0	2.00 2.00	4.00 4.00	6.00 6.00	8.20 8.20	12.00 12.00	25.00 25.00	33.00 33.00	42.00 40.00

*Diameter inside bark.

Demand next 120 days: good, fair, poor

HOUSE LOGS

Prices are recorded as the highest reported price followed by the average reported price (H/A).

Spec*	Top diam. (in.)	Length (feet)			
		< 16	16-25	33-35	> 35
LPP	8 9-12 13+	1.17/1.17			30.00/30.00 30.00/30.00 30.00/30.00

*LPP = lodgepole pine.
Engelmann spruce and western white pine also in demand.
Most buyers purchase only rot-free, standing trees with a minimum of spiraling.

Demand next 120 days: good, fair, poor

FOR SALE EQUIPMENT

Sawmill - Jackson Lumber Harvester, diesel power, 24" hydraulic log deck, has sawn very little since complete factory rebuild. Also, 2 saw edger w/gas engine power. Contact Permanent Log Homes Inc., P.O. Box 160, Shepard, Montana 59079. Phone (406)373-5811.

Used Armstrong #4 bandsaw grinder; used #6 Double cut bandsaw grinder; used #25 Armstrong circle saw grinder; 1979 Mobile Dimension Sawmill with 30' of track $6,500. Also, have 1 circular sawmill for sale $450. Contact Bob Miller, Missoula Saws, 2301 Grant Street, Missoula, Montana 59891. Phone (406)721-2580.

Brush Blades, custom fabricated swing type blades for all makes of crawler tractors and skidders. Precision flame cut alloy teeth and unique quick attachment features. Contact Gregg Collier (406)822-4777, or Peter Martin (406)822-4378.

The Precision Sawmill Company announces the release of their new VHS Video tape called "One Pass Small Log Processing." The VHS video feature both the Portable Precision Sawmill and the Larger Permanent Precision 4-6-8 Electric. Pallet manufactures are able to cut deck boards.

Wood Fired boiler systems for burning green or dry sawdust, chips, bark, hogged fuel, shavings, etc. Contact R.W. Gorman Associates, Inc., Box 548, Washburn, Wisconsin 54891. Phone (715)373-2632.

Fell GJF auto wood turning lathe, American 12" Jointer with grinder, Yates American G44 swing saw, Whitney S-290 26" planer, Oakley double belt stroke sander, Root vertical borer, Northfield #4 table saw, Schneebed grinder, Porter spindle shaper, Yates American Facing planer, BACCI 3 Spindle Copy Lathe, RYE 52" rotary table shaper, Weinig 6 head push feed molder, Tenko double end profiler, HMC Debarker, Beach Double end cutoff with roll table, Beach Straight line cutoff, Wysong & Miles edge sander, JW Penny Merry-go-Round resaw system complete, Molsander, Bell Double end cutoff & Miter, Robinson 30" and 36" planers, Onsrud pin router, Hawker dowel machine, carstens combination drum platten 36" sander, 48x48 pressure blast cabinet, A&B Single Spindle linear shaper, McNight 4 spindle chair borer, Fell boc shaper sander/sander, Danckeart double sided planer. For more information contact: Paul Dennis, TDS Machinery, Inc., 19 Monarch Street, Littletown, Pennsylvania 17340. Phone (717)359-9211.

PRODUCTS AND SERVICES

1/4" to 2 1/4" dia. x 16' lg. or larger dowels available in lengths up to 10 feet long. Balls, bases, blocks, electronic parts, handles, knobs, molding, plugs, reels, rollers, shaping, spools, toy parts, wedges and wheels. Available in plain, dip spray or tumble finishes. We treat for outside use. Also, Coopers and wooden food processor supplies. Many other products to customers specs. Contact, Ed Koelbl, American Wood Working Company, P.O. Box 335, Montello, Wisconsin 53949. Phone (608)297-2131.

Kiln Dried Appalachian Red Oak located in our Memphis, Tennessee yard. (#110) 13M' 2C and btr; (#107) 20M' 4/4 1C; (#102) 20M' 4/4 1F all 8'; (#103) 30M' 4/4 1F all 14-16'; (#105) T/L 4/4 1F all 14-16'. Located in Tennessee (#100) 24M' 4/4 White Oak 1C A/Dry RL 8-12'. Germain Timber Company, P.O. Box 7836, Pittsburg, PA. Phone (412)782-3240.

Micro thin wooden business cards, same dimensions as standard business cards but made of double thin veneers! Ideal for anyone in the lumber or wood working industries. Very reasonably priced at $98 per 500 and $138 per 1,000. Additional charges for specialty printing (logos, colored ink, etc.). Specify item #CF-235.

LUMBER DRYING VIDEO AVAILABLE

North Carolina State University has made a video titled "Quality Influences in Kiln Drying." The video is presented by Lee Fiske of Forest Products Associates. Lee has over 35 years experience operating his own custom drying operation and is a graduate wood technologist from Yale University. The program describes a common sense approach to helping operators reduce drying degrade.

The following topics are covered on the video: 1) Special Stickering Techniques to reduce bowing or "crowning" warpage. 2) The correct way to box pile lumber (many companies box pile in a way which increases warpage). 3) How to avoid degrade by careful monitoring of the development of hairline checks. 4) Combining packages of lumber without the use of bolsters by using special stickers, blocks and a "separator wedge." 5) When to use the oven and scales technique vs the electronic moisture meter to calculate moisture and how to select samples. 6) The control of air flow, problems, remedies and avoiding hot spots in the kiln. 7) How to modify drying schedules for increased productivity while maintaining quality. 8) Equalizing and conditioning - how and why, plus a new technique for stress relief and moisture uniformity.

For more information contact the Wood Industry Video, Department of Wood and Paper Science, North Carolina State University, P.O. Box 8005 Raleigh, North Carolina 27695-8005. Phone (919)737-3181.

NOTICE TO WOOD TREATERS

Just a reminder that as of November 10, 1986, you will be required to have a pesticide applicators license to purchase creosote, pentachlorophenol and inorganic arsenicals.

Most of you have attended one of the certification training courses offered by the Department of Agriculture, however, if you haven't, don't dispare. Study books and testing are available at any one of the Department of Agriculture offices listed below.

The Department of Agriculture did an excellent job organizing the training sessions around the State, and there was excellent support by Montana's wood treators.

District I
Greg W. Murfitt
Environmental Mngt Div.
607 SW Higgins
Missoula, MT 59801
Phone (406)549-9678

District II
Dave Quist
Environmental Mngt Div.
Suite E
234 East Babcock
Bozeman, MT 59715
Phone (406)587-9067

District III
Darrell Stankey
Environmental Mngt Div.
821 17th Street North
P.O. Box 1397
Great Falls, MT 59403
Phone (406)761-0926

District IV

Environmental Mngt Div.
P.O. Bldg, Room 203
Box 1054
Glasgow, MT 59230
Phone (406)228-9510

District V
Dale Strouf
Environmental Mngt Div.
321 S 24th Street West
Billings, MT 59102
Phone (406)652-3615

COMPUTER PROGRAMS AVAILABLE

Sawing Simulation Analysis (BOF):

Sawing Simulation Analysis (SSA) is a computer program that allows you to simulate sawing logs under specified milling conditions. In the past log diagrams were drawn by hand to simulate log sawing. This was an inaccurate and time consuming method. The sawings simulation program is a spin off of the USFS Best Opening Face program developed at the Forest Products Laboratory.

SSA can be used to analyze your lumber recovery improvement potential. You can compare your current Lumber Recover Factor (LRF) to what you might call your "maximum LRF" as determined by the BOF program. It can also be used to analyze down stream piece count flow.

With SSA, you can control the following 21 variables.

1. Saw setting increment
2. Minimum and maximum log length
3. Log and cant face opening increment
4. Minimum log required for cant
5. Sawing variation allowance
6. Sawing method, cant or live
7. Lumber sizes, green or dry
8. Maximization, dollars or volume
9. Cant breakdown method, split or full
10. Cant breakdown fence, fixed or variables
11. Edging method, trimback or full length
12. Narrowest piece allowed
13. Shortest piece allowed
14. Headsaw kerf
15. Log diameter increment
16. Cant breakdown kerf
17. Tangential shrinkage
18. Dressing allowance
19. Offset positions
20. Lumber dimensions
21. Log breakdown method

Output from SSA includes by log: LRF, BOF distance from center of log, sawing sequence, offset and piece count. The BOF program can maximize either dollar value or log volume.

The program is available from the Forest Service on MS-DOS. A minimum of 192K RAM is required.

Lumber Recovery Factor Change - Economic Analysis:

LRF Change - Economic Analysis (LRFC-EA) is a spreadsheet template that helps you determine if productivity improvements will yield an increase in operating profits. LRFC-EA, which uses payback, can show how to estimate likely changes in operating profits by making improvements in the log breakdown system. These estimates are then used to calculate rates-of-return on the costs for improvement. LRFC-EA can be used to determine the relative attractiveness of alternative projects.

Input information required:

- Average periodic log input
- Current Lumber Recover Factor (LRF)
- Average variable log costs per MBF
- Nominal b.f. of dry, dressed lumber in one cubic foot
- Average value of lumber per MBF
- Residue value per MBF of lumber logged
- Expected change in value of lumber output
- Percent (+ or -) in log input volume
- Expected change in operating costs
- Expected change in LRF

The bottom line is the expected change in operating profit. Methods other than payback should be used to assess projects for likely return on investment.

LRFC-EA is currently available from the Forest Service for the Lotus 1-2-3 spreadsheet program. It can be transferred to other spreadsheets.

Log Analysis:

Log Analysis (LA) is a routine combining informational text files and programs. It allows you to collect and store information about logs. In addition, you can compute information on trim allowance, log volume, and log tally. This routine can be used to conduct a mill study or to track logs through the mill yard and through the mill.

Log data can be entered from the keyboard or from an electronic data-gathering device. A separate program may be necessary to reformat electronic data.

The log information collected is determined by the user. For example, length can be measured in feet and tenths or feet and inches. Diameter measurements can be recorded as minimum, maximum, average, random and/or D-tape for each of three locations in the log (small end, midpoint, large end). Other information, such as defect and cost data, can also be collected for each log.

Output includes:

1. Log volumes - using Smalian's, Huber's, or Newton's formulas.

2. Log tallies - calculated according to Doyle, Scribner Dec-C, Bureau long log, or International 1/4" and 1/8" rules.

3. Excess trim volume.

The stored raw data can be accessed and used by other routines, such as Sawing Simulation Analysis (BOF) or those the user may create.

LA is currently available form the Forest Service for IBM-compatible microcomputers.

To receive a copy of SSA, LRFC-EA and/or LA, send your request along with an unused 5 1/4" or 3 1/2" floppy disk to:

Stanford J. Lunstrum
State and Private Forestry
Forest Products Laboratory
P.O. Box 5130
Madison, Wisconsin 53705

For a demonstration of these programs or for more information, contact the Marketing Bulletin Editor.

If you wish to advertise a forest product or a piece of wood-processing machinery in this bulletin complete the form below. No charge is made for this service. If you wish to rerun an item, a written request must be submitted before the next issue.

NAME OF PERSON OR FIRM: _____

MAILING ADDRESS: _____

ZIP CODE: _____ PHONE: _____

Type or print your advertisement in the space below, detach and return to:

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Division of Forestry
Forest Products Bulletin
2705 Spurgin Road
Missoula, MT 59801

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DIVISION OF FORESTRY
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